# Bassett Creek Watershed Management Commission

## Technical Advisory Committee Meeting

Wednesday June 1, 2022
10:30 – 12:00
Wirth Lake Room, Brookview

1. **CALL TO ORDER**
2. **COMMUNICATIONS**
3. **BUSINESS**

**A. Continue Discussion on XP-SWMM Model Update** (see Table 1 below and presentation slides in email/online)

As reviewed at the May meeting, in late 2021 and early 2022, Commission Engineers gathered development and project information from cities in order to update the XP-SWMM model. Commissioner Engineer Koehler presented the results of the model update along with comparisons to the 2020 draft FEMA model. There was discussion about the status of the DNR's project to update the FEMA floodplains and whether or not it was appropriate to assume upstream storage would be protected. Follow-up communications with DNR staff indicates that the DNR has made no further progress on this, and they will continue discussions with member cities in the near future. For the Bassett Creek Valley area, the City of Minneapolis is particularly concerned about potential drastic differences between the current flood elevations (even with new BCWMC model data) and the eventual FEMA floodplain elevations. TAC members are to check their own city codes regarding floodplain requirements; in particular, they should determine if their codes include ways to protect storage areas and/or allow for setting a higher regulatory flood elevation.

TAC members requested data comparing current BCWMC model elevations (Phase 2) with proposed updated elevations (draft 2021 update). Please see Table 1 for those comparisons.

The TAC should continue discussion of several items:

- Consider recommending that the Commission adopt the updated model and associated flood elevations
- Consider recommending that the Commission develop inundation mapping for the trunk system (using FEMA-mapping methodology). Would this be necessary or useful based on the 2021 model update? Upstream areas too? Or just incorporate the trunk system flood event summary table into the BCWMC plan?
- Consider streamlining data gathering from cities for future model updates.
- Consider if changes are needed to the current process for model use by others, where the requests go through the cities and a conditional license agreement signed.

**B. Development Review Fees** (see Table 2 below)

At their May meeting, the Commission reviewed the Budget Committee's proposed 2023 Operating Budget. Included was a recommendation to revise the development review fees to better cover the actual costs of development reviews. The committee's original recommended revised fee schedule is found here. TAC members at the meeting were concerned about the proposed increase for reviewing municipal projects from $1,500 to $2,000. The Commission Engineer was asked to analyze the impact of keeping the base fee for municipal projects at $1,500 but allowing add-on fees. Table 2 includes that data for the 2019 – 2021 project reviews. The TAC should consider a recommendation on the overall fee schedule.

**C. Gaps Analysis for Watershed Plan Update** (see document attached in email and online)

At a Watershed Plan Update workshop in July, the Commission will review input gathered from cities and review agencies and will review a gaps analysis that can be used to guide development of the new Plan by identifying new or evolving issues that may warrant further evaluation.

The TAC is encouraged to review and provide input on the attached draft Gaps Analysis document, either at this TAC meeting (if time allows), or via email by June 24th. Are there issues missing from the analysis? Is additional information needed to better describe a current issue or an opportunity to address a gap?

**D. Community Events for Plan Input Opportunities**

If you haven't already, please assist with identification of events in your city where BCWMC commissioners and staff can gather input from residents about water resources. Or, please let me know who at your city should be contacted for event information.

**E. Next Meeting**

July 6th at 10:30. Location TBD.

4. **ADJOURN**

# Table 1: Results Comparison of Phase 2 (July 2017), 2020 DRAFT FEMA (July 2020), and DRAFT 2021 Model Update (April 2022) - Flood Elevations and Peak Discharges

| Location | Creek Distance, See Reach Reference (feet) | Normal Water Level (NAVD88 feet) | BCWMC Historic Flood Profiles[1] | | Phase 2 XPSWMM Model[5] | | 2020 DRAFT FEMA Model[7] | | | | | | DRAFT 2021 Model Update | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | |
| | | | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) |
| **BASSETT CREEK MAIN STEM (Creek Distance Upstream of Mississippi River)** | | | | | | | | | | | | | | | | | | |
| Tunnel Inlet | 8,000 | | 807.3 | 1,220 | 810.9 | 1,380 | 802.3 | 400 | 804.9 | 690 | 810.3 | 1,310 | 802.4 | 420 | 804.8 | 678 | **809.8** | 1,276 |
| Van White Memorial Blvd (DS) | --- | | --- | --- | 811.0 | 1,400 | 802.9 | 400 | 805.1 | 690 | 810.3 | 1,310 | 803.0 | 402 | 805.0 | 661 | **809.9** | 1,275 |
| Van White Memorial Blvd (US) | --- | | --- | --- | 811.0 | 1,530 | 803.0 | 400 | 805.2 | 660 | 810.3 | 1,400 | 803.1 | 402 | 805.0 | 661 | **809.9** | 1,409 |
| Irving Avenue Bridge (DS) | 9,800 | | 808.6 | 1,135 | 811.2 | 1,380 | 805.5 | 400 | 806.7 | 700 | 810.4 | 1,320 | 805.5 | 420 | 806.7 | 678 | **809.9** | 1,276 |
| Irving Avenue Bridge (US) | --- | | 809.3 | 1,135 | 811.3 | 1,380 | 805.9 | 400 | 807.0 | 660 | 810.5 | 1,400 | 805.9 | 402 | 807.0 | 660 | **809.9** | 1,395 |
| Cedar Lake Rd (DS) | --- | | --- | --- | 812.9 | 1,380 | 809.5 | 400 | 810.7 | 660 | 812.9 | 1,400 | 809.5 | 402 | 810.7 | 660 | 812.9 | 1,394 |
| Cedar Lake Rd (Bridge) | 10,900 | | 812.9 | 945 | 813.3 | 1,380 | 809.7 | 400 | 810.9 | 660 | 813.1 | 1,400 | 809.7 | 402 | 810.9 | 660 | **813.1** | 1,394 |
| MN&S RR Bridge (Downstream) | --- | | --- | --- | 813.7 | 1,370 | 810.2 | 400 | 811.5 | 660 | 813.7 | 1,400 | 810.2 | 402 | 811.5 | 660 | 813.7 | 1,394 |
| MN&S RR Bridge | 11,600 | | 814.8 | 945 | 814.5 | 1,370 | 810.3 | 400 | 811.5 | 660 | 813.8 | 1,400 | 810.3 | 402 | 811.5 | 660 | **813.8** | 1,394 |
| Penn Ave Culvert & Bridge (DS) | 12,410 | | 814.9 | 705 | 814.5 | 1,370 | 810.8 | 400 | 812.1 | 660 | 812.9 | 1,390 | 810.8 | 402 | 812.1 | 660 | **812.9** | 1,393 |
| Penn Ave Culvert & Bridge (US) | --- | | 815.2 | 705 | 814.5 | 1,370 | 811.9 | 400 | 813.5 | 660 | 814.8 | 1,390 | 811.9 | 402 | 813.5 | 660 | **814.8** | 1,393 |
| BN RR Bridge(DS) | --- | | --- | --- | 814.4 | 1,370 | 811.9 | 400 | 813.5 | 660 | 814.7 | 1,390 | 811.9 | 402 | 813.5 | 660 | **814.7** | 1,393 |
| BN RR Bridge | 12,670 | | 815.3 | 705 | 815.6 | 1,370 | 811.9 | 400 | 813.5 | 660 | 814.8 | 1,390 | 811.9 | 402 | 813.5 | 660 | **814.8** | 1,393 |
| MN&S RR Bridge (DS) | 13,930 | | 816.2 | 465 | 815.8 | 1,370 | 812.8 | 400 | 814.1 | 660 | 815.8 | 1,390 | 812.8 | 403 | 814.1 | 661 | 815.8 | 1,391 |
| MN&S RR Bridge (US) | --- | | 816.4 | 465 | --- | --- | 812.9 | 400 | 814.2 | 660 | 815.9 | 1,390 | 812.9 | 403 | 814.2 | 661 | 815.9 | 1,391 |
| Fruen Mill Dam (DS) | 14,150 | | 816.5 | 510 | 817.2 | 1,370 | 814.9 | 400 | 815.5 | 660 | 817.0 | 1,390 | 814.9 | 403 | 815.5 | 661 | **817.0** | 1,391 |
| Fruen Mill Dam (US) | --- | | 818.2 | 510 | 819.8 | 1,370 | 817.2 | 400 | 818.0 | 660 | 819.8 | 1,390 | 817.2 | 403 | 818.0 | 661 | 819.8 | 1,391 |
| Glenwood Ave(DS) | --- | | --- | --- | 822.1 | 1,370 | 818.3 | 400 | 819.5 | 660 | 822 | 1,390 | 818.3 | 403 | 819.5 | 661 | **821.8** | 1,391 |
| Glenwood Ave | 14,855 | | 820.3 | 680 | 822.2 | 1,290 | 818.3 | 360 | 819.4 | 600 | 821.8 | 1,300 | 818.3 | 358 | 819.4 | 603 | **821.8** | 1,300 |
| Hwy 55 (DS) | 16,500 | | 821.7 | 680 | 823.4 | 1,190 | 819.5 | 360 | 820.8 | 600 | 823.2 | 1,200 | 819.5 | 358 | 820.8 | 603 | **823.2** | 1,204 |
| Hwy 55 (US) | --- | | 826.2 | 680 | 826.5 | 1,500 | 822.0 | 410 | 823.8 | 660 | 826.5 | 1,510 | 822.0 | 407 | 823.7 | 662 | 826.5 | 1,507 |
| Golf Cart Bridge | --- | | 826.2 | 680 | 826.6 | 1,520 | 822.0 | 440 | 823.8 | 720 | 826.5 | 1,540 | 822.0 | 436 | 823.8 | 714 | 826.5 | 1,538 |
| MN&S RR Bridge(DS) | --- | | --- | --- | 826.6 | 1,520 | 822.0 | 440 | 823.8 | 720 | 826.6 | 1,540 | 822.0 | 436 | 823.8 | 714 | 826.5 | 1,538 |
| MN&S RR Bridge | 18,700 | | 826.2 | 945 | 826.6 | 1,520 | 822.0 | 440 | 823.8 | 720 | 826.6 | 1,540 | 822.0 | 436 | 823.8 | 715 | 826.6 | 1,541 |
| Plymouth Ave Bridge | 19,500 | | 826.2 | 680 | 826.7 | 1,550 | 822.1 | 450 | 823.8 | 750 | 826.6 | 1,590 | 822.1 | 451 | 823.8 | 753 | 826.6 | 1,583 |
| Wirth Parkway (DS) | 20,480 | | 826.2 | 1,570 | 826.7 | 1,450 | 822.1 | 460 | 823.9 | 740 | 826.6 | 1,480 | 822.1 | 453 | 823.8 | 741 | 826.6 | 1,475 |
| Wirth Parkway (US) Bridge | --- | | 826.5 | 1,570 | 826.8 | 1,460 | 822.6 | 460 | 824.9 | 750 | 826.8 | 1,480 | 822.5 | 459 | 824.9 | 752 | 826.8 | 1,478 |
| Confluence w/ Sweeney Lake Branch | 22,000 | | 827.2 | ---- | 827.2 | 1,460 | 823.7 | 470 | 825.3 | 780 | 827.3 | 1,480 | 823.7 | 466 | 825.3 | 775 | 827.3 | 1,483 |
| Golden Valley Road (DS) | 23,800 | | 827.4 | 790 | 828.2 | 1,350 | 826.2 | 390 | 826.8 | 670 | 828.3 | 1,360 | 826.2 | 387 | 826.8 | 663 | 828.3 | 1,363 |
| Golden Valley Road (US) | 23,800 | | 830.2 | 680 | 833.8 | 1,340 | 827.3 | 390 | 828.9 | 660 | 833.7 | 1,360 | 827.3 | 387 | 828.9 | 661 | 833.7 | 1,361 |
| Dresden Lane (DS) | 25,900 | | 830.5 | 680 | 834.1 | 1,340 | 829.5 | 390 | 830.5 | 660 | 834.0 | 1,350 | 829.5 | 387 | 830.4 | 657 | 834.0 | 1,353 |
| Dresden Lane (US) | --- | | 831.6 | 680 | 834.1 | 1,350 | 829.8 | 390 | 831.2 | 660 | 834.0 | 1,360 | 829.8 | 387 | 831.2 | 658 | 834.0 | 1,357 |
| Bassett Creek Drive (DS) | --- | | 832.2 | 665 | 834.4 | 1,290 | 830.8 | 390 | 832.2 | 630 | 834.3 | 1,310 | 830.8 | 384 | 832.2 | 623 | 834.3 | 1,310 |
| Bassett Creek Drive (US) | --- | | 832.9 | 665 | 837.0 | 1,300 | 831.2 | 390 | 833.0 | 620 | 837.0 | 1,310 | 831.2 | 385 | 833.0 | 620 | 837.0 | 1,312 |
| Noble Lane (DS) | 29,200 | | 839.7 | 660 | 838.7 | 1,320 | 836.4 | 390 | 837.1 | 630 | 839.0 | 1,340 | 836.4 | 386 | 837.1 | 627 | **839.0** | 1,337 |
| Noble Lane (US) | --- | | 839.7 | 660 | 839.7 | 1,300 | 836.6 | 390 | 837.5 | 620 | 840.0 | 1,320 | 836.6 | 385 | 837.5 | 616 | **840.0** | 1,318 |
| Regent Avenue (DS) | 30,800 | | --- | 660 | 843.0 | 1,300 | 840.2 | 390 | 841.2 | 620 | 843.0 | 1,320 | 840.2 | 385 | 841.2 | 617 | 843.0 | 1,319 |
| Regent Avenue (US) | --- | | 842.1 | 660 | 843.7 | 1,280 | 840.3 | 390 | 841.4 | 610 | 843.7 | 1,290 | 840.3 | 384 | 841.4 | 606 | 843.7 | 1,291 |

**Bold Blue:** Peak elev reduced by 0.1 ft+ when compared to BCWMC Phase 2 Model
**Bold Red**: Peak elev increased by 0.1 ft+ when compared to BCWMC Phase 2 Model

# Table 1: Results Comparison of Phase 2 (July 2017), 2020 DRAFT FEMA (July 2020), and DRAFT 2021 Model Update (April 2022) - Flood Elevations and Peak Discharges

| Location | Creek Distance, See Reach Reference (feet) | Normal Water Level (NAVD88 feet) | BCWMC Historic Flood Profiles[1] | | Phase 2 XPSWMM Model[5] | | 2020 DRAFT FEMA Model[7] | | | | | | DRAFT 2021 Model Update | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | |
| | | | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) |
| Minnaqua Avenue | 31,650 | | 842.7 | --- | 844.0 | 1,260 | 840.9 | 380 | 842.0 | 600 | 844.0 | 1,280 | 840.9 | 381 | 842.0 | 597 | 844.0 | 1,274 |
| Highway 100 (DS) | 34,020 | | 843.4 | 770 | 844.8 | 1,300 | 842.0 | 400 | 842.8 | 590 | 844.8 | 1,320 | 842.0 | 399 | 842.8 | 589 | 844.8 | 1,314 |
| Highway 100 (US) | 34,020 | | 849.2 | 610 | 851.2 | 1,040 | 844.7 | 270 | 847.3 | 360 | 850.9 | 960 | 844.6 | 270 | 847.3 | 355 | **850.9** | 963 |
| DS Confluence N. Branch | 34,400 | | 849.2 | 495 | 851.2 | 1,040 | 844.7 | 270 | 847.3 | 360 | 850.9 | 960 | 845 | 270 | 847 | 355 | **851** | 963 |
| Westbrook Road (DS) | 37,000 | | 857.3 | 940 | 859.0 | 870 | 856.9 | 310 | 857.7 | 480 | 858.8 | 820 | 856.9 | 312 | 857.8 | 482 | **858.9** | 822 |
| Westbrook Road (US) | --- | | 858.3 | 940 | 860.0 | 870 | 857.2 | 300 | 858.2 | 470 | 860.1 | 790 | 857.2 | 303 | 858.2 | 468 | **860.1** | 795 |
| Duluth Street (DS) | 38,400 | | 861.5 | 850 | 861.9 | 850 | 859.4 | 310 | 860.5 | 470 | 861.8 | 790 | 859.4 | 307 | 860.5 | 469 | 861.8 | 795 |
| Duluth Street (US) | --- | | 862.0 | 850 | 862.6 | 830 | 859.6 | 300 | 860.7 | 460 | 862.4 | 770 | 859.6 | 304 | 860.7 | 461 | **862.5** | 780 |
| St. Croix Avenue (DS) | 39,800 | | 863.2 | 850 | 864.5 | 830 | 862.1 | 310 | 863.1 | 460 | 864.3 | 780 | 862.1 | 308 | 863.1 | 463 | **864.3** | 783 |
| St. Croix Avenue (US) | --- | | 864.3 | 850 | 864.7 | 800 | 862.4 | 300 | 863.5 | 450 | 864.6 | 740 | 862.4 | 302 | 863.5 | 449 | 864.6 | 746 |
| MN&S RR (DS) | 41,660 | | 869.7 | 760 | 870.3 | 700 | 868.6 | 250 | 869.2 | 380 | 870.1 | 650 | 868.6 | 249 | 869.2 | 376 | **870.2** | 647 |
| MN&S RR (US) | --- | | 869.7 | 760 | 870.5 | 690 | 868.7 | 250 | 869.3 | 370 | 870.3 | 640 | 868.7 | 250 | 869.3 | 371 | **870.3** | 636 |
| Douglas Drive (DS) | 42,130 | | 870.4 | 670 | 871.0 | 700 | 869.0 | 250 | 869.7 | 370 | 870.8 | 640 | 869.0 | 251 | 869.7 | 372 | **870.8** | 637 |
| Douglas Drive (US) | --- | | 871.2 | 670 | 871.8 | 690 | 869.2 | 250 | 870.1 | 370 | 871.5 | 630 | 869.2 | 250 | 870.1 | 368 | **871.6** | 631 |
| Florida Avenue (DS) | 42,820 | | 871.8 | 670 | 872.6 | 690 | 869.7 | 250 | 870.6 | 370 | 872.5 | 630 | 869.7 | 251 | 870.6 | 368 | **872.5** | 632 |
| Florida Avenue (US) | --- | | 872.5 | 670 | 873.0 | 690 | 869.8 | 250 | 870.9 | 370 | 872.9 | 630 | 869.8 | 252 | 870.9 | 368 | **872.9** | 633 |
| Hampshire Ave (DS) | 43,410 | | 872.7 | 630 | 873.4 | 690 | 870.6 | 260 | 871.5 | 370 | 873.2 | 630 | 870.6 | 255 | 871.5 | 371 | **873.2** | 635 |
| Hampshire Ave (US) | --- | | 873.2 | 630 | 874.0 | 670 | 870.8 | 250 | 871.8 | 360 | 873.8 | 600 | 870.8 | 250 | 871.8 | 355 | **873.8** | 604 |
| GV Country Club (DS) | 44,320 | | 874.6 | 365 | 876.1 | 660 | 873.5 | 250 | 874.2 | 360 | 875.8 | 600 | 873.5 | 251 | 874.2 | 359 | **875.8** | 595 |
| GV Country Club (US) | --- | | 878.6 | 405 | 880.6 | 650 | 875.7 | 220 | 878.4 | 340 | 880.6 | 570 | 875.7 | 224 | 878.4 | 344 | 880.6 | 573 |
| Pennsylvania Avenue (DS) | 46,500 | | 879.5 | 380 | 881.6 | 650 | 879.2 | 220 | 879.8 | 340 | 881.4 | 570 | 879.2 | 224 | 879.8 | 344 | **881.4** | 573 |
| Pennsylvania Avenue(US) | --- | | 880.7 | 375 | 882.9 | 550 | 879.7 | 210 | 880.5 | 300 | 882.5 | 470 | 879.7 | 206 | 880.5 | 302 | **882.5** | 475 |
| C&NW RR (DS) | 47,200 | | 881.9 | 375 | 884.1 | 560 | 881.3 | 210 | 882.1 | 310 | 883.5 | 490 | 881.3 | 206 | 882.1 | 306 | **883.5** | 492 |
| C&NW RR (US) | --- | | 883.1 | 375 | 885.0 | 450 | 881.7 | 170 | 882.6 | 230 | 884.8 | 370 | 881.7 | 167 | 882.6 | 232 | **884.8** | 372 |
| Winnetka Ave (DS) | 48,000 | | 883.5 | 360 | 885.1 | 440 | 881.9 | 150 | 882.8 | 200 | 884.8 | 360 | 881.9 | 147 | 882.8 | 199 | **884.8** | 360 |
| Winnetka Ave (US) | --- | | 883.7 | 360 | 885.3 | 430 | 882.1 | 140 | 883.0 | 200 | 885.0 | 360 | 882.1 | 138 | 883.0 | 198 | **885.0** | 358 |
| Wisconsin Ave (DS) | 49,750 | | 884.9 | 360 | 886.0 | 430 | 883.1 | 140 | 883.8 | 200 | 885.3 | 360 | 883.1 | 136 | 883.8 | 197 | **885.3** | 356 |
| Wisconsin Ave (US) | 50,100 | | 888.2 | 340 | 887.6 | 370 | 885.1 | 120 | 886.5 | 170 | 888.0 | 290 | 885.1 | 115 | 886.5 | 167 | **888.0** | 289 |
| Golden Valley Road (DS) | --- | | 888.2 | 290 | 887.7 | 340 | 885.2 | 130 | 886.5 | 200 | 888.1 | 310 | 885.2 | 110 | 886.5 | 160 | **888.1** | 310 |
| Golden Valley Road (US) | --- | | 888.2 | 290 | 887.7 | 340 | 885.2 | 140 | 886.5 | 200 | 888.2 | 310 | 885.2 | 110 | 886.5 | 160 | **888.2** | 306 |
| Westbound Hwy 55 (DS) | 51,250 | | 888.2 | 290 | 887.7 | 340 | 885.2 | 150 | 886.5 | 210 | 888.3 | 320 | 885.2 | 110 | 886.5 | 160 | **888.3** | 333 |
| Eastbound Hwy 55 (US) | --- | | 888.3 | 290 | 887.8 | 410 | 885.2 | 150 | 886.5 | 250 | 888.1 | 430 | 885.2 | 109 | 886.5 | 157 | **888.1** | 306 |
| Boone Ave (DS) | --- | | 888.4 | 280 | 887.9 | 320 | 885.5 | 120 | 886.7 | 170 | 888.1 | 300 | 885.5 | 116 | 886.7 | 168 | **888.1** | 304 |
| Boone Ave (US) | --- | | 888.5 | 280 | 887.9 | 220 | 885.5 | 80 | 886.7 | 110 | 888.2 | 230 | 885.5 | 83 | 886.7 | 105 | **888.2** | 227 |
| Hwy 169 (DS) | 56,500 | | 888.6 | 255 | 888.3 | 300 | 886.1 | 80 | 887.1 | 140 | 888.4 | 300 | 886.1 | 82 | 887.1 | 140 | **888.4** | 301 |
| Hwy 169 (US) | --- | | 888.7 | 250 | 888.4 | 240 | 886.1 | 70 | 887.1 | 100 | 888.5 | 240 | 886.1 | 72 | 887.1 | 105 | 888.5 | 238 |
| Hwy 55 Ramp (DS) | 58,300 | | 888.7 | 235 | 888.4 | 220 | 886.1 | 40 | 887.1 | 80 | 888.5 | 230 | 886.1 | 35 | 887.1 | 76 | 888.5 | 228 |

**Bold Blue:** Peak elev reduced by 0.1 ft+ when compared to BCWMC Phase 2 Model
**Bold Red**: Peak elev increased by 0.1 ft+ when compared to BCWMC Phase 2 Model

# Table 1: Results Comparison of Phase 2 (July 2017), 2020 DRAFT FEMA (July 2020), and DRAFT 2021 Model Update (April 2022) - Flood Elevations and Peak Discharges

| Location | Creek Distance, See Reach Reference (feet) | Normal Water Level (NAVD88 feet) | BCWMC Historic Flood Profiles[1] | | Phase 2 XPSWMM Model[5] | | 2020 DRAFT FEMA Model[7] | | | | | | DRAFT 2021 Model Update | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | |
| | | | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) |
| Hwy 55 Ramp (US) | --- | | 888.7 | 235 | 888.4 | 220 | 886.1 | 30 | 887.1 | 80 | 888.5 | 230 | 886.1 | 34 | 887.1 | 76 | 888.5 | 228 |
| Hwy 55 Eastbound (DS) | 58,500 | | 888.7 | 235 | 888.4 | 220 | 886.1 | 30 | 887.1 | 80 | 888.5 | 230 | 886.1 | 34 | 887.1 | 76 | 888.5 | 228 |
| Hwy 55 Eastbound (US) | --- | | 888.7 | 235 | 888.4 | 220 | 886.1 | 40 | 887.2 | 80 | 888.5 | 230 | 886.1 | 40 | 887.2 | 76 | 888.5 | 228 |
| Hwy 55 Westbound (DS) | --- | | 888.7 | 235 | 888.4 | 220 | 886.1 | 40 | 887.2 | 80 | 888.5 | 230 | 886.1 | 40 | 887.2 | 76 | 888.5 | 228 |
| Hwy 55 Westbound (US) | --- | | 889.0 | 235 | 888.4 | 220 | 886.2 | 30 | 887.2 | 80 | 888.5 | 230 | 886.2 | 33 | 887.2 | 76 | **888.5** | 228 |
| Hwy 169 ramp to W 55 (DS) | 58,750 | | 889.0 | 235 | 888.4 | 220 | 886.2 | 30 | 887.2 | 80 | 888.6 | 230 | 886.2 | 33 | 887.2 | 76 | **888.6** | 228 |
| Hwy 169 ramp to W 55 (US) | --- | | 889.0 | 235 | 888.5 | 220 | 886.2 | 30 | 887.2 | 80 | 888.6 | 230 | 886.2 | 33 | 887.2 | 76 | **888.6** | 228 |
| Hwy 55 N Frontage Rd (DS) | 58,850 | | 889.2 | 235 | 888.5 | 220 | 886.2 | 30 | 887.2 | 80 | 888.6 | 230 | 886.2 | 33 | 887.2 | 76 | **888.6** | 228 |
| Hwy 55 N Frontage Rd (US) | --- | | 889.2 | 235 | 888.5 | 220 | 886.2 | 30 | 887.2 | 80 | 888.6 | 230 | 886.2 | 33 | 887.2 | 76 | **888.6** | 228 |
| Pedestrian Bridge near Cub Foods | --- | | --- | --- | 888.7 | 220 | 886.2 | 30 | 887.2 | 80 | 888.9 | 230 | 886.2 | 33 | 887.2 | 76 | **888.9** | 229 |
| 10th Ave (DS) | --- | | 889.2 | --- | 889.0 | 220 | 886.3 | 60 | 887.3 | 120 | 889.2 | 230 | 886.3 | 63 | 887.3 | 124 | **889.2** | 227 |
| 10th Ave (US) | --- | | 889.2 | --- | 889.2 | 220 | 886.3 | 30 | 887.3 | 80 | 889.3 | 230 | 886.3 | 62 | 887.3 | 128 | **889.3** | 227 |
| C&NW RR Bridge (DS) | 63,450 | | 889.2 | 200 | 889.2 | 220 | 886.3 | 30 | 887.3 | 80 | 889.3 | 230 | 886.3 | 62 | 887.3 | 128 | **889.3** | 227 |
| C&NW RR Bridge (US) | --- | | 889.6 | 200 | 889.2 | 220 | 886.8 | 30 | 887.3 | 80 | 889.4 | 230 | 886.8 | 33 | 887.3 | 77 | **889.4** | 228 |
| South Shore Drive (DS) | 63,800 | | 889.6 | 190 | 889.3 | 220 | 887.1 | 30 | 887.7 | 80 | 889.5 | 230 | 887.1 | 33 | 887.7 | 77 | **889.5** | 228 |
| South Shore Drive (US) | --- | | 890.5 | 190 | 889.4 | 220 | 887.1 | 50 | 887.7 | 80 | 889.5 | 230 | 887.1 | 33 | 887.7 | 77 | **889.5** | 228 |
| Medicine Lake Weir (DS) | 63,960 | | 890.5 | 190 | 889.4 | 220 | 887.1 | 30 | 887.7 | 80 | 889.5 | 220 | 887.1 | 33 | 887.7 | 77 | **889.5** | 228 |
| **Inundation Areas** | | | | | | | | | | | | | | | | | | |
| Theodore Wirth Park (Area upstream of Highway 55 Control Structure) | --- | 815.7 | 826.2 | --- | 826.5 | --- | 822.0 | --- | 823.8 | --- | 826.5 | --- | 822.0 | --- | 823.7 | --- | 826.5 | --- |
| South Rice Pond | --- | | 831.7 | --- | 834.3 | --- | 830.6 | --- | 832.1 | --- | 834.2 | --- | 830.5 | --- | 832.1 | --- | 834.2 | --- |
| North Rice Pond | --- | 832.5 | 838.2 | --- | 836.4 | --- | 833.6 | --- | 834.5 | --- | 836.6 | --- | 833.6 | --- | 834.5 | --- | **836.6** | --- |
| Grimes Avenue Pond | --- | 832.5 | 838.2 | --- | 836.4 | --- | 833.6 | --- | 834.5 | --- | 836.7 | --- | 833.6 | --- | 834.5 | --- | **836.7** | --- |
| Golden Valley Country Club | --- | --- | 878.6 | --- | 880.6 | --- | 875.7 | --- | 878.4 | --- | 880.6 | --- | 875.7 | --- | 878.4 | --- | 880.6 | --- |
| Brookview Golf Course | --- | --- | 888.3 | --- | 887.8 | --- | 885.2 | --- | 886.5 | --- | 888.1 | --- | 885.2 | --- | 886.5 | --- | **888.1** | --- |
| Westwood Lake | --- | 887.6[3] | 889.2 | --- | 890.0 | --- | 888.3 | --- | 888.8 | --- | 889.9 | --- | 888.3 | --- | 888.8 | --- | 889.9 | --- |
| Medicine Lake | --- | 887.9 | 890.5 | --- | 890.4 | --- | 888.8 | --- | 889.4 | --- | 890.4 | --- | 888.8 | --- | 889.5 | --- | 890.4 | --- |
| **NORTH BRANCH (Creek Distance Above Confluence with Main Stem)** | | | | | | | | | | | | | | | | | | |
| Hwy 100 Control (US) | --- | | 849.2 | 610 | 851.2 | 1,040 | 844.7 | 270 | 847.3 | 360 | 850.9 | 960 | 844.6 | 270 | 847.3 | 355 | **850.9** | 963 |
| Confluence w/Main Stem | --- | | 849.2 | --- | 851.2 | 1740.0 | 844.7 | 230 | 847.3 | 660 | 850.9 | 1660 | 844.7 | 189 | 847.3 | 656 | **850.9** | 1664.4 |
| 29th Avenue (DS) | 200 | | 849.2 | 1515 | 851.2 | 1,740 | 844.7 | 230 | 847.3 | 660 | 850.9 | 1660 | 844.7 | 189 | 847.3 | 656 | **850.9** | 1,664 |
| 29th Avenue (US) | --- | | 849.7 | 1515 | 851.2 | 1,290 | 844.7 | 410 | 847.3 | 580 | 850.9 | 1320 | 844.6 | 416 | 847.3 | 582 | **850.9** | 1,407 |
| 32nd Avenue (DS) | 2,600 | | 849.8 | 1175 | 851.2 | 1290 | 844.7 | 410 | 847.3 | 580 | 850.9 | 1320 | 844.6 | 416 | 847.3 | 582 | **850.9** | 1407 |
| 32nd Avenue (US) | --- | | 854.2 | 1175 | 852.7 | 560 | 850.1 | 320 | 851.2 | 350 | 852.7 | 600 | 850.1 | 319 | 851.2 | 341 | 852.7 | 598 |

**Bold Blue:** Peak elev reduced by 0.1 ft+ when compared to BCWMC Phase 2 Model
**Bold Red**: Peak elev increased by 0.1 ft+ when compared to BCWMC Phase 2 Model

# Table 1: Results Comparison of Phase 2 (July 2017), 2020 DRAFT FEMA (July 2020), and DRAFT 2021 Model Update (April 2022) - Flood Elevations and Peak Discharges

| Location | Creek Distance, See Reach Reference (feet) | Normal Water Level (NAVD88 feet) | BCWMC Historic Flood Profiles[1] | | Phase 2 XPSWMM Model[5] | | 2020 DRAFT FEMA Model[7] | | | | | | DRAFT 2021 Model Update | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | |
| | | | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) |
| Brunswick Avenue (DS) | 3,000 | | 854.9 | 1175 | 852.7 | 560.0 | 850.1 | 320 | 851.2 | 350 | 852.7 | 600 | 850.1 | 319 | 851.2 | 341 | 852.7 | 598.2 |
| Brunswick Avenue (US) | --- | | 856.1 | 1175 | 856.7 | 510 | 854.4 | 360 | 855.4 | 320 | 856.9 | 560 | 854.4 | 360 | 855.3 | 326 | **856.8** | 559 |
| 34th Culvert (DS) | 4,200 | | 863.0 | 700 | 861.5 | 520 | 860.8 | 280 | 861.2 | 350 | 861.6 | 570 | 860.8 | 277 | 861.2 | 348 | **861.6** | 565 |
| 34th Culvert (US) | --- | | 866.3 | 430 | 867.2 | 500 | 863.0 | 230 | 865.1 | 480 | 868.1 | 570 | 862.9 | 222 | 865.1 | 483 | **868.0** | 560 |
| Apartment Drive Crossing (DS) | --- | | --- | --- | 868.3 | 570 | 866.9 | 230 | 867.4 | 320 | 869.1 | 790 | 866.9 | 222 | 867.4 | 314 | **869.0** | 778 |
| Apartment Drive Crossing (US) | --- | | --- | --- | 869.6 | 580 | 867.8 | 230 | 869.1 | 320 | 870.6 | 850 | 867.7 | 222 | 869.0 | 314 | **870.6** | 834 |
| Douglas Drive (DS) | 5,250 | | 870.2 | 670 | 869.6 | 580 | 867.8 | 230 | 869.1 | 320 | 870.6 | 850 | 867.7 | 222 | 869.0 | 314 | **870.6** | 834 |
| Douglas Drive (US) | --- | | 870.3 | 670 | 870.5 | 380 | 868.3 | 180 | 869.7 | 240 | 870.7 | 440 | 868.2 | 178 | 869.6 | 239 | **870.6** | 437 |
| Edgewood Emb (DS) | 5,600 | | 870.9 | 430 | 871.0 | 380 | 868.2 | 180 | 869.7 | 240 | 871.4 | 440 | 868.1 | 178 | 869.6 | 239 | **871.4** | 437 |
| Edgewood Emb (US) | --- | | 878.4 | 340 | 880.4 | 340 | 872.3 | 170 | 875.7 | 220 | 880.6 | 400 | 872.0 | 187 | 875.5 | 217 | **880.5** | 395 |
| Georgia Avenue (DS) | 6,250 | | 878.4 | 305 | 880.4 | 460 | 872.3 | 220 | 875.7 | 310 | 880.6 | 450 | 872.1 | 211 | 875.5 | 320 | **880.5** | 455 |
| Georgia Avenue (US) | --- | | 878.6 | 305 | 880.8 | 520 | 872.9 | 220 | 875.8 | 350 | 880.8 | 510 | 872.8 | 203 | 875.5 | 307 | 880.8 | 506 |
| 36th & Hampshire (DS) | 6,800 | | 878.6 | 260 | 880.8 | 480 | 872.9 | --- | 875.8 | --- | 880.8 | --- | 872.8 | --- | 875.5 | --- | 880.8 | --- |
| 36th & Hampshire (US) | 6,980 | | 879.2 | 260 | 881.3 | 280 | 875.0 | 150 | 876.3 | 180 | 881.5 | 310 | 875.0 | 166 | 876.0 | 233 | **881.5** | 363 |
| Louisiana Ave. (DS) (Street Elevation Approx. 882.4) | 8,000 | | 881.2 | --- | 883.3 | 490 | 880.1 | 120 | 881.6 | 190 | 883.1 | 470 | 881.6 | 112 | 882.9 | 176 | 883.3 | 485 |
| Maryland Ave. (Street Elevation Approx. 885.7) | 8,500 | | --- | --- | 886.0 | 260 | 881.7 | 70 | 884.0 | 80 | 886.5 | 250 | 882.7 | 63 | 885.4 | 138 | **886.5** | 321 |
| Oregon Ave. (Street Elevation Approx. 885.4) | 9,000 | | --- | --- | 888.5 | 90 | 882.9 | 60 | 885.2 | 80 | 888.3 | 100 | 883.3 | 63 | 885.4 | 77 | **888.3** | 97 |
| MN & S RR (Street Elevation Approx. 889.1) | 9,300 | | --- | --- | 889.6 | 90.0 | 884.2 | 60 | 886.5 | 80 | 889.8 | 100 | 884.3 | 62.7 | 886.6 | 77.0 | **889.9** | 97.3 |
| East Winnetka Pond Inlet (Control Structure) | 9,500 | | 888.2 | --- | 890.9 | 100 | 884.5 | 70 | 886.8 | 90 | 890.2 | 110 | 884.6 | 65 | 886.9 | 76 | **890.3** | 169 |
| Service Road (West Winnetka Pond- DS) | --- | | --- | --- | 890.9 | 190 | 884.5 | 70 | 886.8 | 80 | 890.2 | 170 | 884.6 | 65 | 886.9 | 76 | **890.3** | 169 |
| Service Road (West Winnetka Pond- US) | 10,000 | | 888.2 | --- | 891.1 | 190 | 884.6 | 70 | 887.0 | 80 | 890.5 | 170 | 884.7 | 65 | 887.1 | 76 | **890.5** | 169 |
| Winnetka Ave. (DS) | 10,600 | | 888.2 | --- | 891.1 | 220 | 884.6 | 80 | 887.0 | 130 | 890.5 | 240 | 884.7 | 79 | 887.1 | 132 | **890.5** | 252 |
| Winnetka Ave. (US) | --- | | 889.2 | --- | 891.3 | 270 | 885.0 | 80 | 887.5 | 140 | 891.1 | 310 | 885.0 | 81 | 887.6 | 143 | **891.2** | 311 |
| Boone Ave. (DS) | 13,500 | | 889.5 | --- | 891.4 | 730 | 885.6 | 140 | 887.6 | 200 | 891.1 | 750 | 885.6 | 141 | 887.6 | 187 | **891.2** | 731 |
| Boone Ave. (US) | --- | | 889.7 | --- | 891.4 | 270 | 886.9 | 150 | 888.2 | 200 | 891.1 | 330 | 887 | 147 | 888 | 199 | **891** | 328 |
| Northwood Pond | --- | | 889.7 | --- | 891.4 | 270 | 886.9 | 150 | 888.2 | 200 | 891.1 | 330 | 887 | 147 | 888 | 199 | **891** | 328 |
| TH 169 (DS) | 16,850 | | 889.7 | --- | 893.0 | 270 | 887.1 | 150 | 888.4 | 200 | 891.8 | 330 | 887 | 147 | 888 | 199 | **892** | 328 |
| TH 169(US) | --- | | 890.7 | --- | 893.1 | 750 | 888.9 | 150 | 890.7 | 200 | 892.9 | 330 | 889 | 147 | 891 | 199 | **893** | 328 |
| Rockford Road (DS) | 18,350 | | 890.7 | --- | 893.1 | 750 | 888.9 | 150 | 890.7 | 200 | 892.9 | 330 | 889 | 147 | 891 | 199 | **893** | 328 |
| Rockford Road (US) | --- | | 898.7 | --- | 897.2 | --- | 893.3 | --- | 894.8 | --- | 897.1 | --- | 893.3 | --- | 894.8 | --- | **897.1** | --- |
| **Inundation Areas** | | | | | | | | | | | | | | | | | | |
| Bassett Creek Park | --- | 840.6 | 849.7 | --- | 851.2 | --- | 844.7 | --- | 847.3 | --- | 850.9 | --- | 844.6 | --- | 847.3 | --- | **850.9** | --- |
| Edgewood Avenue Pond | --- | --- | 878.4 | --- | 880.4 | --- | 872.3 | --- | 875.7 | --- | 880.6 | --- | 872.0 | --- | 875.5 | --- | **880.5** | --- |
| Winnetka Pond (DS of Winnetka Avenue) | --- | 879.8 | 888.2 | --- | 890.9 | --- | 884.5 | --- | 886.8 | --- | 890.2 | --- | 884.6 | --- | 886.9 | --- | **890.3** | --- |

**Bold Blue:** Peak elev reduced by 0.1 ft+ when compared to BCWMC Phase 2 Model
**Bold Red**: Peak elev increased by 0.1 ft+ when compared to BCWMC Phase 2 Model

# Table 1: Results Comparison of Phase 2 (July 2017), 2020 DRAFT FEMA (July 2020), and DRAFT 2021 Model Update (April 2022) - Flood Elevations and Peak Discharges

| Location | Creek Distance, See Reach Reference (feet) | Normal Water Level (NAVD88 feet) | BCWMC Historic Flood Profiles[1] | | Phase 2 XPSWMM Model[5] | | 2020 DRAFT FEMA Model[7] | | | | | | DRAFT 2021 Model Update | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | |
| | | | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) |
| Northwood Park | --- | --- | 889.5 | --- | 891.3 | --- | 885.0 | --- | 887.5 | --- | 891.1 | --- | 885.0 | --- | 887.6 | --- | **891.2** | --- |
| Northwood Pond | --- | 884.6 | 889.7 | --- | 891.4 | --- | 886.9 | --- | 888.2 | --- | 891.1 | --- | 886.9 | --- | 888.2 | --- | **891.2** | --- |
| **SWEENEY LAKE BRANCH (Creek Distance Upstream of Confluence with Main Stem)** | | | | | | | | | | | | | | | | | | |
| Confluence w/Main Stem | --- | | 827.2 | --- | 827.2 | 1,460 | 823.7 | 470 | 825.3 | 780 | 827.3 | 1,480 | 823.7 | 466 | 825.3 | 775 | 827.3 | 1,483 |
| Courage Center Downstream Crossing (DS) | 700 | | 827.2 | --- | 827.2 | 170 | 823.7 | 100 | 825.3 | 130 | 827.3 | 170 | 823.7 | 94 | 825.3 | 134 | 827.3 | 171 |
| Courage Center Downstream Crossing (US) | --- | | 829.2 | --- | 828.0 | 170 | 825.3 | 100 | 826.4 | 130 | 828.0 | 170 | 825.3 | 99 | 826.4 | 142 | 828.0 | 193 |
| Courage Center Upstream Crossing (DS) | --- | | -- | --- | 828.0 | 170 | 825.3 | 100 | 826.4 | 130 | 828.0 | 170 | 825.3 | 99 | 826.4 | 142 | 828.0 | 193 |
| Courage Center Upstream Crossing (US) | --- | | --- | --- | 830.6 | 170 | 826.3 | 100 | 828.4 | 130 | 830.6 | 170 | 826.3 | 94 | 828.3 | 134 | 830.6 | 171 |
| Courage Center & Hidden Lakes Parkway (DS) | 900 | | 829.2 | --- | 830.6 | 170 | 826.3 | 90 | 828.4 | 130 | 830.6 | 170 | 826.3 | 94 | 828.3 | 133 | 830.6 | 172 |
| Courage Center & Hidden Lakes Parkway (US) | --- | | 831.2 | --- | 831.9 | 170 | 826.9 | 90 | 829.2 | 130 | 831.9 | 170 | 826.8 | 94 | 829.1 | 133 | 831.8 | 172 |
| Precast Concrete Dam (DS) | 1,700 | | 831.7 | --- | 831.9 | 170 | 826.9 | 90 | 829.2 | 130 | 831.9 | 170 | 826.8 | 94 | 829.1 | 133 | 831.8 | 172 |
| Sweeney Lake | --- | | 831.7 | --- | 831.9 | 170 | 828.4 | 90 | 829.2 | 130 | 831.9 | 170 | 828.4 | 94 | 829.2 | 133 | 831.8 | 172 |
| Union Pacific RR (DS) | 6,800 | | 831.7 | --- | 831.9 | 400 | 828.4 | 140 | 829.2 | 230 | 831.9 | 400 | 828.4 | 133 | 829.2 | 224 | 831.8 | 395 |
| Union Pacific RR (US) | --- | | 835.8 | 311 | 836.3 | 480 | 829.9 | 130 | 831.6 | 240 | 836.1 | 480 | 829.8 | 133 | 831.5 | 232 | **836.0** | 474 |
| Hwy 55 (DS) | 8,150 | | 835.8 | 680 | 836.8 | 860 | 833.5 | 320 | 834.9 | 520 | 836.7 | 850 | 833.5 | 320 | 834.9 | 504 | **836.6** | 834 |
| Hwy 55 (US) | --- | | 836.9 | 680 | 838.4 | 310 | 834.1 | 160 | 836.0 | 200 | 838.4 | 300 | 834.1 | 158 | 836.0 | 193 | **838.3** | 297 |
| MN & S RR (DS) | 9,000 | | 836.9 | 233 | 838.4 | 260 | 834.1 | 150 | 836.0 | 180 | 838.4 | 250 | 834.1 | 149 | 836.0 | 180 | **838.3** | 250 |
| MN & S RR (US) | --- | | 839.5 | 233 | 841.7 | 260 | 834.9 | 150 | 837.6 | 180 | 841.3 | 250 | 834.8 | 166 | 837.5 | 216 | **841.3** | 251 |
| Breck Pond & Control Structure (US) | 9,580 | | 839.9 | 296 | 842.5 | 270 | 835.4 | 170 | 838.3 | 220 | 842.5 | 250 | 835.3 | 166 | 838.3 | 216 | 842.4 | 251 |
| TH 100 (DS) (Breck Pond) | 10,400 | | 839.9 | 298 | 842.5 | 440 | 835.4 | 150 | 838.3 | 210 | 842.5 | 450 | 835.3 | 149 | 838.3 | 227 | 842.4 | 472 |
| TH 100 (US) | --- | | 845.4 | 298 | 851.0 | 500 | 844.3 | 150 | 845.0 | 230 | 846.8 | 470 | 844.3 | 142 | 845.0 | 219 | **846.8** | 486 |
| Turners Crossroad (US) | 10,950 | | 854.9 | 241 | 857.2 | 430 | 848.9 | 120 | 851.7 | 180 | 857.1 | 410 | 848.8 | 120 | 851.6 | 180 | 857.1 | 416 |
| Glenwood Pond A | --- | | 854.9 | --- | 857.2 | --- | 848.9 | --- | 851.7 | --- | 857.1 | --- | 848.8 | --- | 851.6 | --- | 857.1 | --- |
| MN & S RR (DS) | 11,550 | | 854.9 | 233 | 857.2 | 440 | 848.9 | 30 | 851.7 | 50 | 857.1 | 180 | 848.8 | 32 | 851.6 | 46 | 857.1 | 185 |
| MN & S RR (US) | --- | | 855.0 | 233 | 857.2 | 440 | 848.9 | 30 | 851.7 | 50 | 857.1 | 180 | 848.8 | 32 | 851.6 | 46 | **857.1** | 185 |
| Glenwood Pond B | --- | | 855.0 | --- | 857.2 | --- | 848.9 | --- | 851.7 | --- | 857.1 | --- | 848.8 | --- | 851.6 | --- | **857.1** | --- |
| Glenwood Ave (DS) | --- | | 855.0 | 84 | 857.2 | 100 | 848.9 | 60 | 851.7 | 70 | 857.1 | 120 | 848.8 | 59 | 851.6 | 71 | **857.1** | 115 |
| Glenwood Ave (US) | --- | | 855.0 | 84 | 857.2 | 100 | 849.4 | 60 | 852.1 | 90 | 857.1 | 100 | 849.4 | 59 | 852.0 | 89 | **857.1** | 100 |
| Duck Pond | --- | | 855.0 | --- | 857.2 | --- | 849.4 | 60 | 852.1 | 70 | 857.1 | 120 | 849.4 | --- | 852.0 | --- | **857.1** | --- |
| MN & S RR (DS) | --- | | 855.0 | 233 | 857.2 | 560 | 849.4 | 210 | 852.1 | 320 | 857.1 | 570 | 849.4 | 213 | 852.0 | 315 | **857.1** | 567 |
| MN & S RR (US) | --- | | 858.9 | 233 | 859.4 | 300 | 852.9 | 80 | 855.9 | 110 | 859.3 | 330 | 852.9 | 79 | 855.9 | 108 | **859.3** | 360 |
| Ravine Storage Area | --- | | 858.9 | --- | 859.4 | 90 | 852.9 | 60 | 855.9 | 70 | 859.3 | 120 | 852.9 | 59 | 855.9 | 71 | **859.3** | 115 |
| Courtlawn Pond | --- | | 873.1 | --- | 873.6 | 120 | 871.9 | 20 | 873.2 | 40 | 873.6 | 120 | 871.9 | 17 | 873.2 | 38 | 873.6 | 113 |
| East Ring Pond | --- | | 879.0 | --- | 879.4 | 180 | 876.1 | 20 | 877.3 | 50 | 879.4 | 180 | 876.1 | 22 | 877.3 | 46 | 879.4 | 181 |
| 78" RCP Equalizer | 18,800 | | --- | --- | 879.4 | 480 | 876.1 | 80 | 877.3 | 170 | 879.4 | 480 | 876.1 | 80 | 877.3 | 176 | 879.4 | 476 |
| West Ring Pond | --- | | 879.0 | --- | 879.4 | --- | 876.1 | --- | 877.3 | --- | 879.4 | --- | 876.1 | --- | 877.3 | --- | 879.4 | --- |
| **Ravine Storage Area Overflow** | | | | | | | | | | | | | | | | | | |
| Glenwood Pond B | --- | | 855.0 | --- | 857.2 | --- | 848.9 | --- | 851.7 | --- | 857.1 | --- | 848.8 | --- | 851.6 | --- | **857.1** | --- |
| MN & S RR (DS) | --- | | 855.0 | --- | 857.2 | --- | 849.4 | --- | 852.1 | --- | 857.1 | --- | 849.4 | --- | 852.0 | --- | **857.1** | --- |
| MN & S RR (US) | --- | | 857.3 | --- | 858.9 | --- | 850.2 | --- | 852.4 | --- | 858.8 | --- | 850.2 | --- | 852.3 | --- | 858.9 | --- |

**Bold Blue:** Peak elev reduced by 0.1 ft+ when compared to BCWMC Phase 2 Model
**Bold Red**: Peak elev increased by 0.1 ft+ when compared to BCWMC Phase 2 Model

# Table 1: Results Comparison of Phase 2 (July 2017), 2020 DRAFT FEMA (July 2020), and DRAFT 2021 Model Update (April 2022) - Flood Elevations and Peak Discharges

| Location | Creek Distance, See Reach Reference (feet) | Normal Water Level (NAVD88 feet) | BCWMC Historic Flood Profiles[1] | | Phase 2 XPSWMM Model[5] | | 2020 DRAFT FEMA Model[7] | | | | | | DRAFT 2021 Model Update | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | |
| | | | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) |
| Storage Area | --- | | 857.3 | --- | 858.9 | --- | 850.2 | --- | 852.4 | --- | 858.8 | --- | 850.2 | --- | 852.3 | --- | 858.9 | --- |
| Glenwood Ave (DS) | --- | | 857.3 | --- | 858.9 | --- | 850.2 | --- | 852.4 | --- | 858.8 | --- | 850.2 | --- | 852.3 | --- | 858.9 | --- |
| Glenwood Ave (US) | --- | | 858.9 | --- | 859.4 | --- | 852.9 | --- | 855.9 | --- | 859.3 | --- | 852.9 | --- | 855.9 | --- | **859.3** | --- |
| Ravine Storage Area | --- | | 858.9 | --- | 859.4 | --- | 852.9 | --- | 855.9 | --- | 859.3 | --- | 852.9 | --- | 855.9 | --- | **859.3** | --- |
| **Inundation Areas** | | | | | | | | | | | | | | | | | | |
| Sweeney Lake | --- | 827.2 [4] | 831.7 | --- | 831.9 | --- | 828.4 | --- | 829.2 | --- | 831.9 | --- | 828.4 | --- | 829.2 | --- | 831.8 | --- |
| Twin Lake | --- | 827.2 [4] | 831.7 | --- | 831.9 | --- | 828.4 | --- | 829.2 | --- | 831.9 | --- | 828.4 | --- | 829.2 | --- | 831.8 | --- |
| Breck Pond | --- | 831.6 | 839.9 | --- | 842.5 | --- | 835.4 | --- | 838.3 | --- | 842.5 | --- | 835.3 | --- | 838.3 | --- | 842.4 | --- |
| Courtlawn Pond | --- | 870.1 | 873.1 | --- | 873.6 | --- | 871.9 | --- | 873.2 | --- | 873.6 | --- | 871.9 | --- | 873.2 | --- | 873.6 | --- |
| East Ring Pond | --- | 874.1 | 879.0 | --- | 879.4 | --- | 876.1 | --- | 877.3 | --- | 879.4 | --- | 876.1 | --- | 877.3 | --- | 879.4 | --- |
| West Ring Pond | --- | 874.1 | 879.0 | --- | 879.4 | --- | 876.1 | --- | 877.3 | --- | 879.4 | --- | 876.1 | --- | 877.3 | --- | 879.4 | --- |
| **MEDICINE LAKE BRANCH 'PLYMOUTH CREEK' (Creek Distance Upstream of Medicine Lake Weir)** | | | | | | | | | | | | | | | | | | |
| Pedestrian Crossing (DS) | --- | | --- | --- | 890.4 | --- | 888.8 | --- | 889.4 | --- | 890.4 | --- | 888.8 | --- | 889.5 | --- | 890.4 | --- |
| Pedestrian Crossing (US) | --- | | --- | --- | 890.4 | 690 | 888.8 | 310 | 889.4 | 330 | 890.4 | 760 | 888.8 | 309 | 889.5 | 333 | 890.4 | 754 |
| Pedestrian Crossing (DS) | --- | | | | | --- | 888.8 | --- | 889.5 | --- | 890.5 | --- | 888.8 | --- | 889.5 | --- | **890.5** | --- |
| Pedestrian Crossing (US) | --- | | | | | --- | 888.9 | --- | 889.5 | --- | 890.5 | --- | 888.9 | --- | 889.5 | --- | **890.5** | --- |
| West Medicine Lake Drive (DS) | 10,450 | | 890.5 | --- | 890.7 | 690 | 889.0 | --- | 889.5 | --- | 890.6 | --- | 889.0 | --- | 889.5 | --- | 890.6 | --- |
| West Medicine Lake Drive (US) | --- | | 891.7 | --- | 893.6 | 690 | 892.6 | 200 | 893.1 | 340 | 893.6 | 700 | 892.6 | 201 | 893.1 | 342 | 893.6 | 712 |
| Fish Barrier (DS) | --- | | --- | --- | 916.1 | 240 | 915.5 | 80 | 915.6 | 110 | 916.2 | 280 | 915.5 | 79 | 915.6 | 113 | 916.2 | 275 |
| Fish Barrier (US) | --- | | --- | --- | 923.0 | 240 | 921.7 | 80 | 922.1 | 110 | 923.1 | 280 | 921.7 | 79 | 922.1 | 113 | 923.0 | 275 |
| 26th Avenue N. (DS) | 16,500 | | 925.2 | --- | 924.5 | 240 | 923.1 | 80 | 923.5 | 110 | 924.9 | 280 | 923.1 | 79 | 923.5 | 113 | **924.9** | 275 |
| 26th Avenue N. (US) | --- | | 925.7 | --- | 925.1 | 240 | 923.2 | 80 | 923.8 | 110 | 925.7 | 280 | 923.2 | 79 | 923.8 | 113 | **925.6** | 275 |
| 28th Avenue N. Dike (DS) | --- | | 928.2 | --- | 930.0 | 240 | 928.2 | 80 | 928.8 | 110 | 930.2 | 280 | 928.2 | 79 | 928.8 | 113 | **930.2** | 275 |
| 28th Avenue N. Dike (US) | --- | | 931.0 | --- | 932.3 | 270 | 929.4 | 100 | 931.2 | 130 | 932.3 | 300 | 929.4 | 79 | 931.2 | 113 | 932.3 | 288 |
| County Road 61 (DS) | --- | | 931.0 | --- | 932.3 | 270 | 929.4 | 100 | 931.2 | 130 | 932.3 | 300 | 929.4 | 79 | 931.2 | 113 | 932.3 | 288 |
| County Road 61 (US) | --- | | 931.4 | --- | 934.1 | 240 | 929.6 | 80 | 931.5 | 130 | 934.2 | 280 | 929.6 | 83 | 931.5 | 127 | **934.2** | 275 |
| Xenium Lane (DS) | 20,850 | | 931.4 | --- | 934.1 | 440 | 930.3 | 150 | 931.7 | 250 | 934.3 | 470 | 930.3 | 145 | 931.6 | 251 | **934.2** | 472 |
| Xenium Lane (US) | --- | | 931.7 | --- | 934.5 | 460 | 930.4 | 130 | 931.7 | 230 | 934.6 | 470 | 930.4 | 146 | 931.7 | 252 | **934.6** | 473 |
| Crowne Plaza Downstream Crossing (DS) | --- | | --- | --- | 934.5 | 460 | 930.4 | 130 | 931.7 | 230 | 934.6 | 470 | 930.4 | 146 | 931.7 | 252 | **934.6** | 473 |
| Crowne Plaza Downstream Crossing (US) | --- | | --- | --- | 937.6 | 440 | 930.7 | 120 | 931.9 | 220 | 935.2 | 450 | 930.7 | 123 | 931.9 | 221 | **935.2** | 451 |
| Crowne Plaza Upstream Crossing (DS) | --- | | --- | --- | 937.7 | 440 | 931.3 | 120 | 932.4 | 220 | 935.4 | 450 | 931.3 | 123 | 932.4 | 221 | **935.3** | 451 |
| Crowne Plaza Upstream Crossing (US) | --- | | --- | --- | 938.0 | 440 | 931.6 | 130 | 933.0 | 240 | 936.1 | 480 | 931.6 | 127 | 933.0 | 235 | **936.1** | 482 |
| I-494 (DS) | 22,500 | | 935.2 | --- | 938.1 | 440 | 934.6 | 130 | 935.3 | 240 | 936.5 | 480 | 934.6 | 127 | 935.3 | 235 | **936.5** | 482 |
| I-494 (US) | --- | | 938.7 | --- | 938.9 | 410 | 934.8 | 120 | 935.8 | 220 | 937.8 | 460 | 934.8 | 118 | 935.8 | 215 | **937.7** | 456 |
| Annapolis (DS) | --- | | --- | --- | 941.9 | 280 | 940.4 | 90 | 941.1 | 160 | 942.1 | 330 | 940.4 | 88 | 941.1 | 159 | **942.0** | 325 |
| Annapolis (US) | --- | | --- | --- | 942.8 | 280 | 940.6 | 90 | 941.5 | 160 | 943.1 | 330 | 940.6 | 87 | 941.4 | 159 | **943.0** | 324 |
| Fernbrook Lane (DS) | 25,000 | 947.2 | | --- | 946.7 | 280 | 945.3 | 90 | 946.1 | 160 | 947.4 | 330 | 945.3 | 87 | 946.1 | 159 | **947.4** | 324 |

**Bold Blue:** Peak elev reduced by 0.1 ft+ when compared to BCWMC Phase 2 Model
**Bold Red**: Peak elev increased by 0.1 ft+ when compared to BCWMC Phase 2 Model

# Table 1: Results Comparison of Phase 2 (July 2017), 2020 DRAFT FEMA (July 2020), and DRAFT 2021 Model Update (April 2022) - Flood Elevations and Peak Discharges

| Location | Creek Distance, See Reach Reference (feet) | Normal Water Level (NAVD88 feet) | BCWMC Historic Flood Profiles[1] | | Phase 2 XPSWMM Model[5] | | 2020 DRAFT FEMA Model[7] | | | | | | DRAFT 2021 Model Update | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | | 2-yr | | 10-yr | | 100-yr | |
| | | | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) | Flood Elevation (NAVD88 feet) | Flow Rate (cfs) |
| Fernbrook Lane (US) | --- | | 948.2 | --- | 946.8 | 280 | 945.4 | 90 | 946.2 | 160 | 947.8 | 330 | 945.4 | 87 | 946.2 | 159 | **947.7** | 324 |
| Central Park Pond Outlet Structure (DS) | --- | | 949.2 | --- | 949.8 | 280 | 947.9 | 90 | 948.9 | 160 | 950.2 | 330 | 948.0 | 87 | 948.8 | 159 | **950.2** | 325 |
| Central Park Pond Outlet Structure (US) | --- | | 953.2 | --- | 955.0 | 690 | 951.2 | 160 | 952.4 | 340 | 954.8 | 730 | 951.2 | 165 | 952.4 | 324 | **954.8** | 716 |
| 37th Avenue | 28,900 | | 956.2 | --- | 955.1 | 690 | 951.2 | 160 | 952.5 | 340 | 954.9 | 730 | 951.2 | 165 | 952.4 | 324 | **954.9** | 716 |
| County Road 9 | 30,450 | | 959.2 | --- | 955.3 | 390 | 955.4 | 90 | 956.5 | 180 | 958.5 | 400 | 955.4 | 94 | 956.5 | 177 | **958.5** | 404 |
| Vicksburg Lane (DS) | 31,300 | | 961.2 | --- | 963.0 | 380 | 960.2 | 90 | 961.3 | 170 | 963.1 | 400 | 960.2 | 90 | 961.3 | 170 | 963.1 | 396 |
| Vicksburg Lane (US) | --- | | 962.2 | --- | 963.7 | 280 | 960.3 | 70 | 961.5 | 130 | 963.8 | 300 | 960.3 | 73 | 961.5 | 127 | **963.8** | 296 |
| Pedestrian Crossing/ 41st Street Extension (DS) | --- | | --- | --- | 966.8 | 200 | 964.5 | 50 | 965.0 | 90 | 966.1 | 210 | 964.6 | 53 | 965.0 | 85 | **966.0** | 206 |
| Pedestrian Crossing/ 41st Street Extension (US) | --- | | --- | --- | 967.6 | 140 | 964.6 | 50 | 965.2 | 80 | 967.0 | 160 | 964.7 | 53 | 965.2 | 84 | **966.9** | 155 |
| Yuma Lane (DS) | --- | | --- | --- | 967.9 | 140 | 966.6 | 50 | 967.0 | 80 | 967.8 | 160 | 966.6 | 53 | 967.0 | 84 | **967.7** | 155 |
| Yuma Lane (US) | --- | | --- | --- | 970.3 | 110 | 967.1 | 60 | 967.5 | 80 | 968.4 | 100 | 967.1 | 59 | 967.5 | 79 | **968.4** | 104 |
| Dunkirk Lane (DS) | --- | | 979.2 | --- | 978.1 | 140 | 977.3 | 40 | 977.4 | 60 | 978.3 | 140 | 977.3 | 42 | 977.4 | 56 | **978.3** | 142 |
| Dunkirk Lane (US) | 34,450 | | 982.2 | --- | 983.0 | 140 | 980.8 | 50 | 982.1 | 60 | 983.0 | 150 | 980.8 | 46 | 982.1 | 56 | 983.0 | 145 |
| Field Crossing (DS) | --- | | --- | --- | 983.1 | 100 | 981.3 | 40 | 982.3 | 60 | 983.2 | 100 | 981.3 | 41 | 982.3 | 62 | 983.2 | 100 |
| Field Crossing (US) | --- | | --- | --- | 983.1 | 110 | 981.5 | 40 | 982.3 | 60 | 983.2 | 100 | 981.5 | 42 | 982.3 | 64 | 983.2 | 101 |
| T.H. 55 (DS) | 38,300 | | 982.2 | --- | 983.1 | 100 | 981.6 | 40 | 982.3 | 60 | 983.2 | 100 | 981.6 | 42 | 982.3 | 64 | 983.2 | 98 |
| T.H. 55 (US) | --- | | 982.7 | --- | 984.0 | --- | 981.7 | --- | 982.5 | --- | 984.0 | --- | 981.7 | --- | 982.5 | --- | 984.0 | --- |
| **Inundation Areas** | | | | | | | | | | | | | | | | | | |
| Xenium Lane | --- | | 931.7 | --- | 934.5 | --- | 930.4 | --- | 931.7 | --- | 934.6 | --- | 930.4 | --- | 931.7 | --- | **934.6** | --- |
| Central Park Pond | --- | 948.2 | 952.2 | --- | 955.0 | --- | 953.2 | --- | 953.2 | --- | 954.8 | --- | 951.2 | --- | 952.4 | --- | **954.8** | --- |
| Turtle Lake | --- | 962.9 [5] | 964.2 | --- | 967.0 | --- | 964.2 | --- | 965.2 | --- | 967.0 | --- | 964.2 | --- | 965.2 | --- | 967.0 | --- |
| Rockford Road | --- | | 968.2 | --- | 968.5 | --- | 966.6 | --- | 967.3 | --- | 968.5 | --- | 966.7 | --- | 967.3 | --- | **968.4** | --- |
| Dunkirk Lane | --- | | 982.2 | --- | 983.0 | --- | 980.8 | --- | 982.1 | --- | 983.0 | --- | 980.8 | --- | 982.1 | --- | 983.0 | --- |
| Oak Knoll Pond | --- | 914.4 | 917.3 | --- | 918.6 | --- | 917.0 | --- | 917.5 | --- | 918.7 | --- | 917.0 | --- | 917.5 | --- | 918.7 | --- |
| Crane Lake | --- | 917.3 | 920.7 | --- | 920.2 | --- | 918.7 | --- | 919.2 | --- | 920.2 | --- | 918.7 | --- | 919.2 | --- | 920.2 | --- |

## Notes

[1]Values as listed in Table 2-9 of the original BCWMC 2015 Watershed Management Plan (reflecting Hennepin County FIS – revised December 23, 2002), prior to July 2017 that included updates to Table 2-9. The 2015 values were presented in NGVD29 and have been updated to NAVD88 (NAVD88=NGVD29+0.18ft).

[2]Multiple inflows to node. The reported peak inflow reflects the sum all inflow peaks.

[3]Barr study surveyed outlet of Westwood Lake and found the outlet ditch has filled with sediment to evelevation 887.6ft. The outlet pipe invert elevation (historical normal water level) is at 886.18ft

[4]As-built survey November 27,2012

[5]Turtle Lake Feasibility Study, November 10, 2011

[6]Revised results based on Phase 2 model and July 2017 update to Table 2-9

[7]Based on July 2020 model with MNDNR and Plymouth comments incorporated and submitted to MnDNR; Has not been officially approved

**Bold Blue:** Peak elev reduced by 0.1 ft+ when compared to BCWMC Phase 2 Model

**Bold Red**: Peak elev increased by 0.1 ft+ when compared to BCWMC Phase 2 Model

Table 2
BCWMC TAC Meeting
June 1, 2022

| Summary of Revenues and Review Costs based on Project Review Category 2019-2021 | | | | |
|---|---|---|---|---|
| Project Review Category | Number of Projects | Total Application Fee Revenue | Total Review Costs | Differential |
| All projects | 99 | $202,123 | $245,101 | ($42,978) |
| All projects [1] | 95 | $161,000 | $188,194 | ($27,194) |
| Erosion & Sediment Control Only | 51 | $76,500 | $72,949 | $3,551 |
| Reviews with Add-on Fees | 28 | $107,123 | $131,175 | ($24,052) |
| Reviews with Add-on Fees[2] | 25 | $66,000 | $74,268 | ($8,268) |
| Municipal Projects [3] | 30 | $43,500 | $59,088 | ($15,588) |
| **Municipal Projects [3,4]** | **30** | **$51,500** | **$59,088** | **($7,588)** |
| Single Family Lot | 11 | $5,500 | $19,172 | ($13,672) |

[1] Excludes projects > $6,000 of review costs (2019-25 Four-Seasons mall; 2020-16 Irving Ave. sanitary sewer replacement; 2021-09; Meadowbrook; 2021-10 Hollydale)

[2] Excludes projects > $6,000 of review costs (2019-25 Four-Seasons mall; 2021-09 Meadowbrook; 2021-10 Hollydale)

[3] Excludes 2020-16 Irving Ave. Sanitary Sewer Replacement (revenue was $17,069; expense was $20,689)

**[4] If municipal projects had Add-on Fees (based on current fee schedule)**

Notes

- Overall, there is a discrepancy between revenue and review cost, especially for 2020 and 2021. The current fee schedule was last revised October 1, 2017.
- As previously noted, there tends to be a few complex projects where review costs significantly exceed application fees. These complex projects tend to skew the results when considering fee schedule revisions. Between 2019 and 2021 there were four projects that exceed $6,000 to review. Implementation of the $5,000 policy helped significantly but did not cover all the costs.
    - 2021-10: Hollydale Residential Development (complex project issues, stormwater reuse, water quality and XPSWMM modeling) revenue was $16,054; expense was $22,730
    - 2020-16: Irving Avenue Sanitary Sewer Replacement (complex project issues, shallow sanitary sewer creek crossing, modeling, contaminated soils, etc.) revenue was $17,069; expense was $20,724
    - 2019-25: Four Seasons Mall Redevelopment (complex project issues, modeling, water quality, developed in partnership with the Commission CIP) revenue was $4,500; expense was $6,056
    - 2021-09: Meadowbrook School (complex project involving manufactured treatment devices (MTDs), review during two budget years, coordination with the applicant who requested a higher MTD total phosphorus removal efficiency than provided in the Requirements Document) revenue was $3,500; expense was $7,399 (review recently completed - the BCWMC will bill applicant for expenses > $5,000)
- The current fee schedule includes lower fees for **Single Family Lot** and **Municipal Projects** because the Commission does not intend to burden single family homeowners with high fees, and the Commission offers lower fees to municipalities that fund the operating budget of the Commission (as acknowledged by TAC and BCWMC during approval of current fee schedule).
- It was also noted that **Single Family Lot** projects often require more communication with project proposers due to their inexperience with construction projects; and that several municipal projects have been more complex and challenging, resulting in more time needed for review and are often subsidized because they are exempt from add-on fees.
- The application fees for **Projects Requiring Only Erosion and Sediment Control Review** were generally consistent with the review cost of those projects during 2019-2021, however, during the last two years review costs have exceed application fees.
- The **Add-On Fees** (for projects requiring rate control, treatment to MIDS performance goal, projects below the 100-year floodplain, work involving creek crossings, projects involving alternative BMPs, projects involving variance request) has not been sufficient to support review costs the last few years. The number of these submittals increased during 2020 and 2021 and have become increasingly complex. Generally, the add on fees during 2019-2021 have been low by over $300 per project (excluding the complex projects described earlier).
- We recommend still including the $5,000 policy.